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## NOTES ON NESTING BEHAVIOR OF *Ectemnius centralis* (CAMERON) (HYMENOPTERA: SPHECIDAE)<sup>1</sup>

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**ABSTRACT:** Nesting behavior was recorded for the previously unstudied wasp, *Ectemnius centralis* (Cameron) in Texas. Female provisioned nests in decaying wood with an assortment of Diptera.

*Ectemnius* wasps are unusual in that they utilize diverse nesting habitats and prey on several insect orders (Bohart and Menke 1976). Most commonly they construct branching nests in rotten wood and prey on Diptera. This paper provides the first biological records for *Ectemnius centralis* (Cameron) which occurs in the southwestern U.S. and Mexico to Colombia and Trinidad.

### Methods

Provisioning behavior and nest architecture were recorded from Kenedy Ranch, Kenedy Co., 5 mi. south and 10-15 mi. east of Sarita, Texas on 24 May 1979. Hunting behavior was observed during July 1980 along the Rio Grande River, near Castolon in Big Bend National Park, Texas.

### Results and Discussion

Although I collected at various locations along the Rio Grande in Big Bend, *Ectemnius centralis* was only encountered between Castolon and Santa Elena Canyon, possibly because this area contained many fallen logs, a result of periodic flooding. Wasps were commonly observed hunting along the river bank, flying slowly past grass and seepwillow (*Baccharis* sp.). Females hovered next to such vegetation, then darted forward and grasped potential prey items, a hunting behavior similar to that reported for *Crabro argusinus* Packard (Matthews et al. 1979). Often prey were discarded, possibly because they were inappropriate, such as small bees.

Nests were located at Kenedy Ranch where females provisioned in a broken, dead limb of live oak (*Quercus* sp.). This horizontal branch was 60 cm in diameter, rested 50 cm above the ground, and had nest entrances

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located on the lower half. Provisioning was first noticed at 11:00 A.M., the wasps using pedal type 1 carriage (Evans 1962) when transporting prey to their open entrances. Two females were collected and their nests subsequently excavated. Nest A had 5 side burrows branching off a shallow main burrow, while nest B had 3 side burrows. Both nests were still being expanded. Side burrows ranged from 4.2 to 9.0 cm long including cell length. Considering 6 completed side burrows, 3 had 2 cells linearly arranged and 3 had single cells. This nest structure fits between "simple branched type" and "complex branched type" (Tsuneki 1960). Side burrows with completed cells were plugged with packed sawdust ranging from 1.7 to 4.8 cm long. Linear cells were separated by plugs ranging from 5 to 7 mm long. Cell dimensions ranged from 10 to 20 mm long by 5 to 11 mm wide. The number of prey in completed cells ranged from 4 to 7, ( $\bar{x}=5.3$ ,  $n=6$ ). Prey were stored in a cell until a full complement was obtained, then oviposition and prey arrangement followed. The egg was attached to the throat of a fly which was placed farthest into the cell, with the remaining prey facing head inward. An assortment of prey was identified as follows: Stratiomyidae: *Nemotelus trinotatus* Mel.; Bomblidiidae: undetermined; Sarcophagidae: *Blaesoxipha hamata* (Aldrich), *B. hunteri* (Hough), *Sarcodexia* sp.; Muscidae: *Orthellia caesarion* (Meigen), *Coenosia* sp.; Tachinidae: *Pseudomyothyria ancilla* (Wlk.), *Paralipse infernalis* (Tns.), *Spoggosia* sp.

*Ectemnius centralis* nesting biology is similar to that of the majority of *Ectemnius* species studies (Krombein 1963; Tsuneki 1960); that is nests are in rotten wood and the prey consists of Diptera. However, a number of species outside of North American are known to nest in the ground and to use other types of prey (Bohart and Menke 1976).

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